

Town of Barrington, New Hampshire
Request for Qualifications
for
Professional Engineering Services
February 1, 2021



Submitted by:



Lee F. Carroll, PE
Electrical Consultants



Steven E. Heyliger P.L.L.C.



February 1, 2021
Town of Barrington
Attn.: Conner MacIver, Town Administrator
PO Box 660
Barrington, NH 03825

***Request for Qualifications
Town of Barrington
Professional Engineering Services***

Dear Mr. MacIver:

It is with great pleasure that CSA Environmental Consultants LLC. provides this document for your review as you consider firms for general engineering services to the Town. CSA is a small firm with myself and Rowen Prescott, PE. I have been a Nottingham resident since 1987 and a former member of the Planning Board. Over the years I have provided numerous services for the Town of Barrington and residents in the Community. CSA has teamed with a diverse group of Structural, Geotech, and Electrical Engineers along with a Licensed Land Surveyor in order for us to provide the requested services. The office is ideally located just 10 minutes from the Barrington Town Hall. We have provided resumes and references in the submission along with the requested rate schedule in a separate envelope. I look forward in meeting with you and the Board during the interview process.

Thank you very much for your time.

Very truly yours,

Christopher Albert



REFERENCES

Town of Epping
Dennis Koch, Public Works Coordinator
(603) 608-9492

Town of Middleton
Jim Knapp, Selectman
(603) 300-2090

Town of Barrington Police Department
Jean Reed Esq. Prosecution Attorney
(603) 502-3788

Village District of Eidelweiss (VDOE), Madison, NH
Jay Buckley, Chairman, Commission
(603) 367-9022

Evergreen Terrace, Lee, NH
Mark Tay, Owner
(603) 772-7676

City of Concord
David Cedarholm, City Engineer
(603) 225-8520

Turbo Cam International, Inc.
Barrington, NH
Gerald Leary, Facilities Manager
(603) 905-0367



36 Stage Rd, Nottingham NH 03290

603.679.1866 C: 603.706.2521

calbert.env@gmail.com

**CHRISTOPHER S. ALBERT, CWS, CPESC, CPSWQ, LSSD
OWNER – CSA ENVIRONMENTAL**

Mr. Albert recently created CSA Environmental Consultants LLS, bringing over 30 years of experience in municipal design, permitting, and construction management in the Wastewater and Drinking Water fields. He is sitting to take the Professional Engineers exam in April 2021.

PROJECT HIGHLIGHTS

Town of Barrington, Public Works Department: Completed an Inventory and Assessment of road surfaces for the Town of Barrington. More than 70 miles of roadway were observed and the condition of the pavement was determined based on the UNH T2 Road Surface Management System (RSMS) software. The software develops a Pavement Condition Inventory (PCI) for each roadway system. The information prioritized the roadway system and determined the cost for roadway repairs.

Barrington, Turbo Cam Internal, Inc.: Conducted the well permitting and groundwater discharge permits for the B1 and B2 facilities.

Barrington, Mobile Station, Route 125: Design of the public water system and septic system for the new facility. The Public Water System was designed to incorporate the surrounding businesses.

Madison, NH-Village District of Eidelweiss: Design of the 120,000-gallon cast in place water storage tank, booster pump design and water system improvements. Obtained a \$295,000 grant through the Groundwater Trust Fund.

Rollinsford Water and Sewer District, Rollinsford, NH: Construction of 3000 LF of 12" DI water line, and a 750,000 gallon prestressed concrete water storage tank.

Pease International Tradeport, Portsmouth, NH: Design and wetland permitting for the construction of a nine-hole golf course addition. Permitting included Army Corps and State of NH site specific and wetland impacts. Project also included 1:1 mitigation and wetland creation.

Town of Bow, NH, Bow Bog Road: Design Engineer and Project manager. Replacement of the Bow Bog Road culvert. Conducted HydroCadd Watershed analysis, prepared a NHDES wetlands permit. Contract administrator and inspector for the construction phase.

Town of Epping: Lead Design Engineer for the new water system Pilot plant. Plant ran at 100 GPM with the removal of arsenic and manganese. Resident Engineer of a 500,000 gpd municipal wastewater treatment facility using a ZENON microfiltration treatment system. Project Manager for the construction of a 300,000-gallon elevated storage tank. Responsible for contract negotiations, progress, payments and quality assurance/quality control for pile driving, steel and concrete placement and tank creation. Project Manager and Resident Engineer for the Route 125 wastewater pump station. Also responsible for the Hoar Pond Well #2 installation and electrical upgrade.

Town of Newfields, NH – Route 85 Water and Sewer Extension: Lead Designer for a 1700 linear foot water extension on NH Route 85. The work entailed the design of the water system crossing a stone box culvert; a Gorman Rupp wastewater Pump station; and Assessing system pressures and placement of hydrants for fire suppression needs and blow offs.

Town of Warren, NH, Baker River Restoration: Design Engineer and Project manager for multiple projects along the Barker River. Assisted in disaster relief and repairs to two bridges after Tropical Storm Irene. Pavement and Culvert inventory plan

PROFESSIONAL EXPERIENCE

2021 to Present: CSA Environmental Consultants LLC. Owner, Nottingham, NH. Project Manager for the design, permitting, and construction management for Drinking Water, Wastewater, Stormwater and Environmental Projects in New Hampshire

2018 to 2021: UNH Technology Transfer Center (T2) Program. Instructor for the Certified Culvert Maintainer (CCM) program for T2. Coordinating with the NHDES Wetlands Bureau, NHDOT and T2 on the training programs. Instructing Road Agents and NHDOT officials on being certified in the best management practices in replacing culverts under 48" in diameter.

2007 to 2020: Jones and Beach Engineers Inc. Stratham, NH. Civil Engineers and Land Surveyors; Senior Project Manager responsible for the design and construction management on environmental and civil engineering projects including: municipal drinking water systems; wastewater pump stations; onsite wastewater treatment systems; wetland delineations, evaluation and mitigation; roadway and highway construction inspector; Town roadway culvert design and stormwater management; Groundwater sampling and studies;

1993 to 2007: Hoyle Tanner and Associates, Manchester, NH. Civil Engineers; Project Manager and Resident Engineer responsible for the design and construction management on environmental and civil engineering project including: FAA airports; water and wastewater treatment plants; landfill closures; Inspector on DOT roadway projects.

1987 to 1993: TF Moran Inc. Manchester, NH. Land Surveyors and Civil Engineers; Senior Survey Chief and Resident Engineer. Responsible for Boundary surveys, resident engineer on landfill and wastewater projects.

1991 to 1997: Town of Nottingham Building Inspector. Responsible for the issuance and inspection on all permits in Town. Town inspector for the construction of the new K-8 middle school.

LICENSES AND CERTIFICATES

Start of New Hampshire Licensed Wetland Scientist (CWS #21)
State of New Hampshire Licensed Designer of Subsurface Disposal Systems (#1085)
State of New Hampshire Licensed Septic System Evaluator (#24)
Certified Professional in Erosion and Sediment Control (CPESC #4668)
Certified Professional in Storm Water Quality (CPSWQ #493)
State of New Hampshire Certified Grade 1A Water Works Operator (Cert. # 3153)
New Hampshire Survey In Training (SIT #300)
OSHA 10-Hour Construction Safety and Health

EDUCATION

University of New Hampshire, B.S. in Forestry, minor in soils
University of New Hampshire, Graduate Courses: Landfill Design, Legal Issues in Engineering, Designing with Geosynthetics

BOARD AND ASSOICATIONS

HB 475 Shoreland Septic Study Commission – Governor Appointment
NH Office of Professional Licensure and Certification (OPLC): Governor Appointments
 Board of Septic System Evaluators, Chairman;
 Board of Natural Resource Scientist, Vice Chairman;
NH Association of Natural Resource Scientist (NHANRS), Board of Directors, past President
Granite State Designers and Installers (GSDI); Board of Directors
Southeast Watershed Alliance (SWA) - Town of Epping Representative, Board of Directors
New Hampshire Water Works Association (NHWWA). Board of Directors

Past member of the Nottingham Volunteer Fire Department, School Board, and Planning Board, chairman.



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ROWEN E. PRESCOTT, P.E. | *Engineered Products Manager*



Rowen Prescott is a Professional Engineer who specializes in civil engineering for water and wastewater projects. His experience includes water treatment design recommendations, design document review and preparation, as well as field observations and equipment commissioning.

Professional Experience

Water

- *Main Street and Mountain Road Water Main Replacement:* Acted as the project engineer for the replacement of 12,000 feet of water main and pump station improvements in Jaffrey, NH. Duties included preparation of design documents for the replacement water main and pump station upgrades as well as for project approval from NHDOT and NHDES. Additional duties included field investigations, attendance at design meetings and coordination with the Jaffrey DPW, Water Department, and Sewer Department.
- *Rochester Pump Station Design:* Acted as project engineer for the design of a new booster pump station and water mains for the City of Rochester, NH. Duties included preparation of design and construction documents for pump station and water mains, hydraulic calculations, coordination with pump manufacturers and submittal review.
- *MDC Clean Water Project:* Provided full time construction observation services to the Metropolitan District Commission for the installation of 1,500 feet of ductile iron water main as a part of the Granby Street Sewer Separation Project in Hartford, CT. Duties included daily construction observation of subcontractor during water main installation as well as daily reports, construction quantities and as-built drawings.
- *Aquarion Water Company Great Boar's Head Water Main Replacement:* Provided design and construction services for the abandonment of an eight-inch cast iron water main, and installation of new HDPE water mains and service connections in Hampton, NH. Duties included preliminary site visit with client, coordination with owner and contractors throughout design and bidding phase, as well as on-site design and construction services.
- *Portsmouth Naval Shipyard Pump Station:* Acted as the project engineer on a team to provide the design and specifications for a full retrofit of the existing fresh water pump station at the Portsmouth Naval Shipyard. This project included the replacement of existing pumps, controls, and piping within the pump station, installation of OSHA compliant staircase, as well as underground water main replacement in the vicinity of the pump station. Duties included preparation of design and construction documents, weekly design meetings with the NAVY, coordination with contractors and subcontractors, editing NAVY specifications, reviewing shop drawings, and construction services.
- *Aquarion Water Company Booster Station:* Provided field observation and client coordination for the replacement of an eight inch ductile iron water main, and installation of a concrete meter vault in Hampton, NH.

YEARS OF EXPERIENCE

8

SPECIALTIES

Water

Wastewater

EDUCATION

Master of Science
Civil Engineering
University of New Hampshire

Bachelor of Science
Civil Engineering
University of New Hampshire

PROFESSIONAL AFFILIATIONS

Water Quality Association

NH Water Works Association

Wastewater

- **Whitla Drive Pump Station Replacement:** Acted as a project engineer for the design of a new sewer pump station located on Whitla Drive in Worcester, MA. Duties included preparation of design plans and specifications for the new pump station as well as the design of a temporary pumping station.
- **Sandwich Wastewater Treatment Facility Upgrades:** Provided design and construction services for the replacement of six (6) existing septic tanks with two new 25,000 gallon septic tanks. Duties included preparation of design and construction plans, specifications, and construction phase services.
- **Webster Leachate Pumping Stations:** Provided field investigation, and design documents for the rehabilitation of two leachate pumping stations located within the sludge residual landfill at the Waste Water Treatment Facility in Webster, MA. Duties included initial site investigation, design plans for the rehabilitation of the stations, pump sizing, hydraulic calculations, and construction phasing plan.
- **Portsmouth Naval Shipyard Sanitary Sewer System:** Provided field observation, maintenance recommendations, and design improvements for the existing sanitary sewer system at the Portsmouth Naval Shipyard in Kittery, ME. Included assessing existing utility components and their condition, studying historical and current flow data, as well as inflow and infiltration rates. Also included preparing contracts for system improvements.

Coastal/Waterfront Engineering

- *Harborwalk Park:* Provided construction observation for a new waterfront park, including repair and replacement of stone seawalls, historical interpretive display and triangular harbor overlook pier, Portsmouth, NH.
- *Harbour Place Wharf & Marina Assessment:* Assessment of a 400 foot long timber wharf and adjacent marina, Portsmouth, NH
- *PNSY Marine Hydrokinetic Energy Implementation Study:* Acted as a project engineer on a team to provide a comprehensive engineering analysis of the hydrokinetic resources in various locations at the Portsmouth Naval Shipyard, Kittery, ME.

Geotechnical

- *Jaffrey, NH Geotechnical Investigation:* Provided geotechnical drilling observation for the replacement of 12,000 feet of water main along Mountain Road and Main Street in Jaffrey, NH.
- *Lindt Sprungli Building Expansion:* Provided geotechnical drilling observation for a 110,000 square foot expansion to the Lindt Sprungli chocolate plant. Duties included observation of subsurface explorations, soil classification, rock classification, and preparation of subsurface exploration location plans.
- *PSNH Substation Improvements:* Provided geotechnical drilling observation at two potential electrical substation sites. Duties included observation of subsurface explorations, soil classification, monitoring well installation, environmental sampling, and preparation of subsurface exploration location plans.
- *Granby Landfill:* Provided field observation for various stages of landfill operations in Granby, MA. Included settlement and slope stability data collection using settlement monitoring equipment and inclinometers on capped and active areas of the landfill.
- *Chicopee Landfill:* Provided field observation for various stages of landfill operations in Chicopee, MA. Duties included leachate head levels and flow data collection using piezometers and pump station instrumentation.
- *Londonderry Subsurface Investigation:* Provided oversight of geotechnical contractors during subsurface investigation in Londonderry, NH. Duties included oversight of test pits, Geoprobe soil sampling, and soil classification.

Additional Experience

- *Aquarion Water Company Kings Highway Water Main Replacement:* Provided design and construction services for the replacement of an eight inch cast iron water main, new crossover connections to two existing six inch cast iron water mains, temporary water services, and all service connections to the new water main. Duties include developing design plans and

specifications for new water main and all connections, coordination with client and contractors throughout bidding process, and construction services.

- *Rochester Retail Development:* Provided permitting and design documents for a proposed 300,000 square foot mixed retail development in Rochester, NH. Duties included preparation of Alteration of Terrain Application and all supporting documentation as well as preparation of design plans and stormwater management design.
- *Greenland Multi-Use Development:* Provided permitting, conceptual and design documents for a proposed development located in Greenland, NH. Duties included preparation of conceptual and design plans as well as preparation of Alteration of Terrain Application and all supporting documentation.
- *Durham Town Hall:* Provided design and construction plans for the new town hall in Durham, NH. Duties include development of site, utility, drainage, and landscape plans.
- *Stratham Multiuse Development:* Provided site plans for a multiuse development in Stratham, NH. Duties include preparation of design documents, site layouts, truck turning, grading plans, utility plans and construction details



Our Clients Make Better Decisions
From the Ground Up.

Providing Earth-Related Services for more than 40 Years

Established in 1979 in Bangor, Maine, S. W. Cole Engineering, Inc. is a geotechnical engineering, geo-environmental consulting and construction materials testing firm serving private and public sector clientele across New England from offices in Maine, New Hampshire, Massachusetts and Vermont. Our team of engineers, scientists and technicians provide services on more than 2,200 projects each year.

WHAT WE DO:

GEOTECHNICAL ENGINEERING

Subsurface Investigations, Foundations, Earthwork, Pavement

Our licensed engineers provide sensible geotechnical solutions for foundations, earthwork and pavements associated with building, site development and infrastructure projects in New England. Our services include:

- Geotechnical Feasibility Studies
- Subsurface Investigations
- Spread Footing Design Parameters
- Deep Foundation Engineering and Design
- Ground Improvement Engineering
- Excavation and Dewatering Consulting
- Retaining Wall and Slope Stability Analyses
- MSE Retaining Wall Design
- Pavement Engineering and Design
- Geotechnical Laboratory Testing

CONSTRUCTION MATERIALS TESTING & SPECIAL INSPECTIONS

Soil, Concrete, Grout, Asphalt, Masonry, Steel, Fireproofing

Our certified technicians provide field and laboratory testing for soil, concrete, masonry, steel, fireproofing and asphalt construction materials, including:

- Construction QA / QC Programs and Monitoring
- Earthwork Observations and Compaction Testing
- Reinforced Concrete Testing and Special Inspections
- Soil / Aggregate Sampling and Testing
- Structural Masonry Testing and Special Inspections
- Structural Steel Testing and Special Inspections
- Spray-Applied Fireproofing Testing and Special Inspections
- Pavement Evaluation and Testing
- IBC Special Inspection Coordination
- Slab Flatness and Moisture Testing
- Certified Welding Inspector Testing



Sidney, ME • Bangor, ME • Caribou, ME • Gray, ME
Londonderry, NH • Somersworth, NH • Taunton, MA • White River Junction, VT



Our Clients Make Better Decisions
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Selected Projects Barrington, NH

Lower Central Avenue – Dover, NH

In 2020, S.W.COLE was retained by the project engineer to provide explorations and geotechnical evaluation for reconstruction of a portion of Central Avenue. The proposed project consists of reconstruction of approximately 2,300 linear feet of Central Avenue between its intersections with Starks Avenue and Silver Street and upgrading of municipal utilities. The asphalt pavement on this area of Central Avenue is underlain by rigid concrete pavement. We provided an exploration program consisting of 10 test borings, provided soils laboratory testing, and made recommendations for construction of a new pavement section.

Culvert Replacements – Wentworth, NH

In 2020, S.W.COLE was retained by the project engineer to provide explorations and geotechnical engineering for two culvert/bridge replacement projects. One site is located on Frescoln Road at the crossing of Rocky Branch and the second site is located on Cross Road at the crossing of Rocky Branch. Both existing crossing structures consists of a 15 to 20-foot culvert crossing. We performed two test borings at each crossing and performed bedrock coring. We evaluated the subsurface findings using Load Resistance Factored Design (LRFD) methodology and developed recommendations for spread footing foundations.

Municipal Roadways – Somersworth, NH

In 2018, S.W.COLE was retained by the project engineer to provide explorations and geotechnical evaluation for reconstruction of several City roadways. The project consisted of reconstruction of a total about 7,700 linear feet of roadways and upgrading of municipal utilities. The roadways in this project included the entirety of Constitutional Way from High Street to Washington Street, Main Street from Johns Parsons Drive to Indigo Hill Road and the entirety of Cemetery Road from West High Street to Maple Street. We provided an exploration program consisting of 10 test borings and 28 ledge probes, provided soils laboratory testing, and made recommendations for construction of a new pavement section.

Province Road – Barrington, NH

In 2020, S.W.COLE was retained by the Town of Barrington Highway Department to provide explorations and geotechnical evaluation conditions of the gravel portion of Province Road. About 2,500 linear feet of Province Road from about 500 feet east of Ham Road to the Madbury town line has historically had winter and spring seasonal issues comprised of mudding, rutting, and general road instability. We performed 6 test borings to assess the subsurface conditions and provide laboratory gradation and chloride and sodium testing to evaluation the road base conditions. We evaluated the conditions and provide reconstruction options with various risk and cost discussions.

Municipal Roadways – Concord, MA

In 2020, S.W.COLE was retained by the project engineer to provide explorations and geotechnical evaluation for reconstruction of several City roadways. The project consisted of reconstruction of a total about 6,900 linear feet of roadways. The project involves five roads in a residential neighborhood including; Prescott Road, Peter Spring Road, Arrowhead Road, Cranefield Road, and Minuteman Drive. We provided an exploration program consisting of 13 test borings, provided soils laboratory testing, and made recommendations for construction of a new pavement section. Our evaluation included a reclaim blend analysis to assess the gradation of the resulting base product from grinding existing pavement into the existing base aggregate layer.



S.W.COLE
ENGINEERING, INC.

Our Clients Make Better Decisions
From the Ground Up.

Selected References Barrington, NH

Gregg M. Mikolaities, P.E.
President
August Consulting, PLLC
1 Willow Ln
Rye, New Hampshire 03870
(603) 475-3658
Gregg@Augustpllc.com

Joel C. Moulton
Public Works Director
Town of Eliot
476 H. L. Dow Highway
Eliot, ME 03903
207-439-9451
jmoulton@eliotme.org

Michael Bezanson, P.E.
City Engineer
City of Rochester-Pierce
45 Old Dover Road
Rochester, NH 03867
603-332-4096
michael.bezanson@rochesternh.net



Chad B. Michaud, P.E.

Executive Vice President
Chief Operating Officer
Principal Geotechnical Engineer

Education:

B.S., Civil Engineering,
University of Maine
GBA Fundamentals of
Professional Practice Course

Registrations:

Professional Engineer (P.E.),
New Hampshire, Maine,
Connecticut, Massachusetts,
Vermont and Rhode Island

Affiliations:

American Council of Engineering
Companies (ACEC)
GBA Professional Firms
Practicing in the Geosciences

Public Service:

Board of Directors, Barrington
Youth Association
Environmental Technical
Advisory Board, Creteau Career
and Technical Center, Spaulding
High School
Youth Baseball, Softball, and
Soccer Coach

SOMERSWORTH OFFICE

Chad Michaud went to Stearns High School in Millinockett, Maine before attending the University of Maine in Orono, Maine. Chad joined S. W. Cole Engineering, Inc. in 1999 as a Geotechnical Engineer. His duties progressed to a project manager and senior geotechnical engineer.

Chad has served on the Board of Directors since 2009. In 2014, he was named Executive Vice President and Chief Operating Officer of the firm. His responsibilities in these roles include corporate management, branch office management, project management training and mentoring, and corporate level oversight of operational functions such as health and safety, human resources and information technology.

Chad's responsibilities with the firm as a Senior Geotechnical Engineer are to manage projects, service clients, provide contract development, coordination of subcontractors and subconsultants, and oversee a staff of geotechnical engineers providing coordination of subsurface investigations and geotechnical design and specifications. Chad has experience providing soils engineering services on a variety of projects including multi-story mixed use commercial buildings, roadways, state and municipal bridges, airports, wastewater and water treatment facilities and lagoons, gas pipelines, municipal buildings, schools, towers, and large retail facilities and industrial structures in New Hampshire, Maine, Connecticut, Vermont, Massachusetts and Rhode Island.

Chad is known for his extensive experience with municipal and local public agency (LPA) funded bridge projects. Chad has worked on hundreds of bridge replacements and rehabilitations in the state of New Hampshire, as well as across New England.

Chad has significant experience providing geotechnical evaluation and global stability analyses for segmental mechanically stabilized earth (MSE) retaining walls and earth embankment slopes. Chad has been involved with many projects requiring a review of slope failures and the development of alternatives for reconstruction.

Chad has experience with field testing and evaluation of various storm-water infiltration testing techniques such as double-ring infiltrometer, Guelph permeameter, and borehole falling head methods.



Tyler Demers, P.E.
Project Geotechnical Engineer

Education:

M.S., Geotechnical Engineering,
University of New Hampshire

B.S., Civil Engineering,
University of Maine

Certifications:

ACI Certified Concrete Field
Technician

Troxler Certified Nuclear]
Densometer Operator

Tyler Demers was raised in Lebanon, Maine. After receiving a bachelor's of science in civil engineering from the University of Maine in Orono, Tyler continued his education at the University of New Hampshire in Durham, where he received a master's degree in geotechnical engineering.

While home from the University of Maine in the summer months, Tyler worked at S.W.COLE as a seasonal laboratory and field technician. After receiving his master's degree, he was hired as full time geotechnical engineer. He is currently studying for the Professional Engineer license exam.

Tyler's responsibilities with the firm as a geotechnical engineer in the Somersworth, New Hampshire office include, but are not limited to, overseeing field exploration programs and preparing reports and exploration logs; performing geotechnical design computations for structures such as foundations and retaining walls; and coordinating subcontractors for various subsurface investigations such as test borings, test pits and test probes. He is responsible for overseeing the implementation of design recommendations for various geotechnical tasks, some of which include pile driving, foundation preparation, subgrade observation and soil compaction.

Project Experience:

East Billerica Sewer Extension, Contract 36, Billerica, Massachusetts: Work on this project included 23,000 linear feet of gravity sewer, 5,800 linear feet of forcemain sewer and 11,500 linear feet of water line as well as upgrades to an existing sewer pump station and the construction of a new sewer pump station. Tyler provided field observation and coordination for an exploration program including 105 test borings and 10 test probes. His duties included daily coordination with multiple drill rigs and with police and client representatives to undertake the extensive program. Tyler compiled exploration findings and assisted in the preparation of the geotechnical evaluation and report for the project.

West Stadium, University of New Hampshire, Durham, New Hampshire: Tyler provided observation and documentation during the pile driving operations for support of this new football stadium building. The subsurface conditions consisted of shallow outcropping bedrock steeply sloping downward and overlain by a soft marine clay deposit. Construction required installation of more than 150 steel H-piles bearing on bedrock. Tyler documented final set on the piles, calculated pile pit and cut-off elevations, and recorded the information in a summary table.

Industrial Building, Mast Road, Dover, New Hampshire: Tyler provided observation and documentation of earthwork activities during building pad construction for the 100,000+ square foot industrial building. Construction included over-excavation of unsuitable fills below the building pad and placement of blast rock borrow and soil fills. Tyler observed and documented the proper placement of the blast rock borrow and the techniques to choke voids with finer material. Work also included field density testing for compaction of soil fill materials.

YEARS EXPERIENCE

20

REGISTRATION

Professional Engineer: NH,
ME, MA, CT, VT, NJ, FL, NY MI,
PA, RI, USVI

EXPERTISE

Mr. Champagne's background is in structural engineering. He holds a B.S. in Civil Engineering from the University of New Hampshire. He has provided structural design and analysis for a variety of institutional, commercial, industrial and residential projects.

KEY PROJECTS**STRUCTURAL DESIGN – Buildings**

- **10 Essex Street – Cambridge, MA :** Design of this mixed use building included parking below grade, retail first floor and five stories of residential above. Structural design included composite steel framing for first two levels with conventional wooden framing above.
- **Connector Park – Lowell, MA:** Design of 270,000 sf, six-story, 250-unit residential structure with attached parking garage. Structural design included five stories of wood framing over a single-story steel podium level for the residential portion and foundation design for the pre-cast concrete parking structure.
- **Maynard Multi-Family, Maynard, MA:** Design of 240,000 sf of multi-family residential structures comprised of three, three and four-story wood framed buildings along with associated maintenance, trash, leasing and parking structures.
- **4 Executive Park Drive, Merrimack, NH:** Design of 270,000 sf of multi-family residential structures comprised of five, four-story wood framed buildings along with associated maintenance, trash, leasing and parking structures.
- **Four Winds Apartments, Fall River, MA:** Design of 40,000 sf four-story wood framed multi-family residential structure.
- **Merrimack Multi-Family Merrimack, NH:** Design of 310,000 sf, five-story, residential structure over parking level at grade. Structural design included four stories of wood framing over a single-story steel podium level for the residential. Currently in design.
- **Kittery Hampton Inn & Suites, Kittery, ME:** Design of this 60,000 sf, four-story, 83-unit hotel building. Structural design included load bearing concrete masonry walls with precast concrete floor and roof plank. Currently under construction.
- **128 Ashworth Avenue, Hampton NH:** Structural design of a new multi-family residential building with a steel braced frame, first floor framing and wood framed construction above. Project was located in a coastal zone. Soil conditions on site required geopiers for ground improvement with spread footings.
- **Wood Springs Suites, various locations:** Design of numerous four-story wood framed hotel structures across New England, New York and Pennsylvania.
- **Salem State University New Residence Hall, Salem, MA:** Design of a 160,000 sf, five story, 525 bed composite steel framed dormitory building with attached 320 seat dining hall. Applied for LEED Gold Certification.
- **Tremont Yard, Lowell, MA:** Design of a five story, 60,000 SF steel framed office building. The building was sited at the former location of a six-story mill building and had to incorporate existing historically significant masonry foundation walls, pits and turbine shafts.

Resume – Robert R. Champagne, PE, LEED AP

- **Exeter YMCA, Exeter NH:** Structural design of a new two-story gym building, with weight lifting space, group studio rooms, offices and locker rooms, and a large basketball court and suspended track. Extremely tight schedule required close coordination with architect and contractor.
- **F W Webb Distribution Facility, Merrimack, NH:** Structural engineer for this 1M sf distribution facility and attached office building. Construction included pre-cast concrete exterior bearing walls and structural steel roof framing. Tight construction schedule required close coordination between design team and contractor.
- **The Monarch School, Rochester, NH:** Design of new 9000 sf single story wood framed school building with wood bearing walls and roof trusses. Custom heavy timber roof trusses designed for exposed great room.
- **Beach District Fire Station, Hampton, NH:** Design of a two story, 10,000 sf masonry building in a coastal zone. Building was constructed with a structural floor slab on piles.
- **Center Harbor Police Station & Town Offices - Center Harbor, NH:** Design of additions and renovations to the existing town hall/police/fire station building. The project included two additions totaling 3300 sf as well as modifications to the structure of the existing building.
- **Pelham Central Fire Station - Pelham, NH:** Design of a single story, 17,000 sf steel and reinforced concrete building. The foundation and apparatus bay walls were constructed with insulated concrete forms and the office/support area utilized cold formed steel framing.
- **Hotel Company Fire Station, St. Thomas, USVI:** Design of a two-story 20,000 sf steel, reinforced concrete and reinforced concrete masonry fire station building. The building included office and support areas as well as a 26' clear height apparatus bay. Significant concrete site retaining walls and cisterns were also required.
- **EMS Headquarters, St. Thomas, USVI:** Design of a single story, 10,000 sf steel and reinforced concrete masonry building with attached covered parking area. The parking area was designed for a future second floor.
- **Criminal Justice Building, St. Croix, USVI:** Design of a four-story, 60,000 sf steel framed structure with cold formed metal framed exterior curtain walls. The essential use group classification as well high seismic zone required the use of a special moment frame lateral load resisting system.
- **Hope Fellowship Church, Jaffrey, NH:** Design of a single story, 13,000 sf wood framed church building. The design included a 500 seat worship area with attached classrooms, conference areas and support facilities.
- **Synagogue, Bloomingburg, NY:** Design of a two story, steel framed multipurpose building. The second floor is a Shul with an open mezzanine above. The lower level includes fitness areas and support facilities.
- **Camp Yavneh, Northwood, NH:** Design of a 6,000 sf multi-purpose building for a Jewish children's camp. Exterior walls were constructed with insulated concrete forms (ICF). Eastern white pine timbers harvested on site were used for construction of the heavy timber roof trusses in the beit midrash.
- **University of New Hampshire Turbulence Research Facility, Durham, NH:** Design of a unique CMU and concrete elevated wind tunnel with steel framed negative pressure building.
- **Other projects:** Structural design of numerous residential structures throughout New England, New York and the United States Virgin Islands. These projects ranged in scope from small additions and renovations to new construction of high-end homes in excess of 20,000 sf.

STRUCTURAL DESIGN – Environmental Structures

- **Meadowcrest WWTP, Citrus County, FLA:** Design of reinforced concrete tanks, aluminum grating and support structure, and two 800 sf masonry storage/operations buildings.
- **Oxford Rochdale Sewer District, Oxford, MA:** Design of a 45 foot diameter reinforced concrete clarifier tank.

Resume – Robert R. Champagne, PE, LEED AP

STRUCTURAL REHABILITATION/RENOVATION

- **Parish of Christ Church, Andover, MA:** Renovation of this historic HH Richardson designed building included the addition of a new mezzanine to support a new organ and choir within the existing chapel area. Significant deterioration of the bell tower masonry walls required partial removal and restoration.

CONDITION ASSESSMENTS

- **Residential Buildings, NJ:** Structural condition assessments of numerous residential building structures which sustained wind and flood damage from super storm Sandy October 2012.

CERTIFICATIONS

- LEED Accredited Professional

EDUCATION

- University of New Hampshire, BSCE, 1999

PROFESSIONAL AFFILIATIONS

- Structural Engineers of New Hampshire (SENH)
- US Green Building Council New Hampshire Chapter
- New Hampshire Architects & Engineers Emergency Response Task Force (Vice President)

LEE F. CARROLL, P.E.
Consulting Electrical Engineers

Lee F. Carroll, P.E., is a small proprietorship consisting of two full-time engineers. The firm obtains CAD services by subcontract with a local firm that provides that service to many national clients. This firm serves various architects, engineers, and/or industrial, institutional, commercial and governmental clients with electrical design work and studies.

The firm's projects include machinery controls design, various electrical designs for facilities (including communication, alarm systems, power and lighting), energy conservation studies and reports, power system studies, reports, and design, power generation controls design, utility rate studies, and expert witness on electrical accidents and/or losses.

Facilities projects have included potable water and waste water treatment facilities, airports (electrical vaults, R/W & T/W lighting and signage, approach lighting), solid waste incineration and recycle plants, sports field lighting, high-rise office facilities, schools, churches, libraries, hospitals and nursing homes, paper mills, machining operations, multiple unit housing, motels, etc.

The firm is presently registered in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York, Connecticut and several other states. Detailed resumes of personnel are available if requested.

Lee F. Carroll, PE
Electrical Consultants
1 Madison Avenue
Gorham, NH 03582
(603) 466-5065(W) (603) 466-3680(H)

Professional Experience

- 1973-Present Self Employed Electrical Engineering Consultant. Electrical Consulting for industrial, commercial, municipal, education and institutional projects. Included are projects on the airfield side of airports including upgrades to power vaults, obstruction beacons, and other ancillary systems/equipment and also potable water and waste water treatment and pumping facilities, electrical utility designs and studies, pulp and paper industry control and power design, low head hydroelectric and coal/wood fired power plants, hospitals, schools, energy audits, and forensic engineering/expert witness testimony, etc.
- 1970-1973 Wright, Pierce, Barnes & Wyman, Topsham, Maine. Chief Electrical Engineer responsible for all electrical design and specifications for engineering projects. Some responsibility for electrical phase of architectural projects of Wright, Pierce & Whitmore. Work included sewage pumping stations, treatment plants, water systems, recreational areas, street and site lighting, schools, hospitals, nursing homes, multi-story office building, etc.
- 1966-1970 Brown Company, Berlin NH Electrical Engineer, Central Engineering, Dept. Responsible for formulating material and construction specifications. Full electric responsibility for \$22 million plant expansion, including consulting firm coordination. Responsible for operation management of power system including budgeting, manpower, etc. Consultant to other company divisions.
- 1965-1966 Georgia-Pacific Corp., Lyons Falls, NY Plant Electrical Engineer. Responsible for initiation, estimating, specification, and follow-up on plant electrical projects. In depth analytical report of plant electrical system economic operations and development of long-range plant generation modifications.
- 1964-1965 American Optical Co., Southbridge MA. - Maintenance Engineer. Responsible for estimating, specification, procurement and follow-up on plant engineering projects.

Resume of Lee F. Carroll, P.E.

- | | |
|-----------|--|
| 1960-1964 | Fraser Paper, Ltd., Madawaska, Maine Plant Electrical Engineer with overall electrical responsibility after 1962. Electrical systems studies, major expansion liaison with contractors. |
| 1957-1960 | Fraser Paper, Ltd., Madawaska, Maine (under Northeastern University cooperative education program). In crew work on electrical maintenance and project engineering work in engineering department. |
-

Education

Graduate of Gould Academy, Bethel, Maine, 1955

Graduate of Northeastern University, BSEE Boston, Mass. 1960

Professional and Civic Activities

Professional Engineer Licensed in Maine, New Hampshire, Commonwealth of Massachusetts, Commonwealth of Virginia, Vermont, New York, Pennsylvania, Rhode Island, New Jersey, North Carolina, South Carolina, Connecticut, and Florida.

Past Professor, Adjunct Staff: NH Community Technical College at Berlin

Master Electrician licensed in State of New Hampshire

Senior Member - Institute of Electrical and Electronics Engineers

Member - Illuminating Engineering Society

Member - New Hampshire Society of Professional Engineers, NSPE

Member - International Association of Electrical Inspectors

Associate Member - National Fire Protection Association

Past Member - N. H. Department of Transportation Appeals Board (1985-2002)

Life Fellow Member – American College of Forensic Examiners International

Resume of Lee F. Carroll, P.E.

Past Member - Board of Trustees - Gould Academy, Bethel Maine (1982-2009)

Past President - New Hampshire Society of Professional Engineers (1999-2000)

Past President - Gorham Development Corporation

Past President - North Country Home Health Agency (1997-2000)

Commissioner - Gorham, NH Water and Sewer Dept.

Past Member - Professional Engineers Board, State of New Hampshire

Emeritus Member - Professional Engineers Board, State of New Hampshire

Past Member – Home Inspectors Board, State of New Hampshire

Member - New Hampshire State Building Code Review Board

Member - PE Electrical and Computer Exam Committee, NCEES

Professional Awards and Recognition

New Hampshire Engineer of the Year, 1990

NCEES Northeast Zone, Distinguished Service Award, 2012



RELEVANT PROJECT EXPERIENCE – NEW ENGLAND
EPPING WELL & PUMP CO. INC.
Gene Schrager -Senior Hydrogeologist

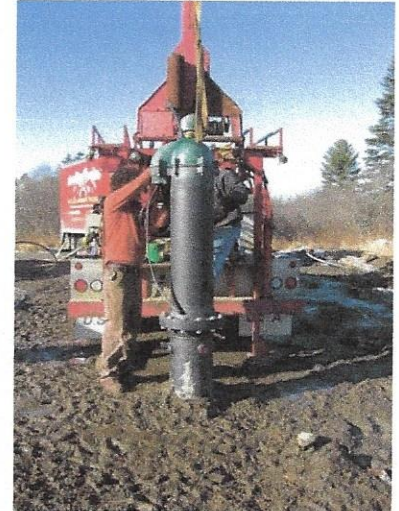
PROJECT EXPERIENCE

VILLAGE DISTRICT OF EASTMAN

Bedrock Well #5

Eastman, New Hampshire

- Explored and developed an additional groundwater supply to meet the future needs of the community
- Conducted a literature review followed by fracture trace analyses coupled with geophysical methods
- Constructed an 8-inch bedrock well 1000 feet deep capable of pumping 150 gpm for extended periods of time
- Contracted with the selected drilling company and supervised the installation of two replacement gravel packed wells following NHDES guidelines
- Selected pumps, pitless adaptors and necessary pumping equipment
- Supervised and tested the wells prior to being connected to the distribution system
- Assisted in obtaining an easement to obtain the sanitary protective radius.
- Prepared the Preliminary Large Groundwater Withdrawal Permit that was approved by the NHDES for Bedrock Well #5



TOWN OF EPPING

Hoar Pond-Bedrock Well #2

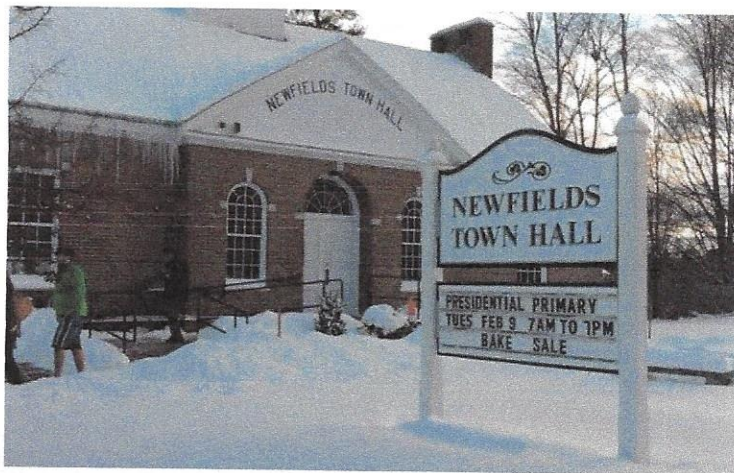
Epping, New Hampshire

- Performed well installation and pump testing for two bedrock wells located near Hoar Pond
- Well #1 was constructed with 70 feet of 8-inch diameter steel casing and was drilled open hole to a depth of 370 feet
- Well #2 was constructed with 8-inch steel casing followed by open hole to a total depth of 690 feet
- Installed monitoring wells to be used during the pump test
- A step-drawdown test was conducted to determine optimal pumping rates and possible interference effects between the two bedrock water supply wells
- Analysis of this data indicated that Well #1 could be pumped continuously at about 65 gpm. At the same time Well #2 could be pumped at about 80 gpm without having significant interference effects
- Located the optimal site for well #2 by evaluating the hydrogeologic data for the site and surrounding area
- Prepared the Large Groundwater Withdrawal permit application which was approved by the NHDES under the Administration Rules Env-Ws 379 and Env-WS388



NEWFIELDS VILLAGE WATER AND SEWER DISTRICT
Goldsmith Well Site
Newfields, New Hampshire

- Hired by the Town engineer to complete the installation and pump testing of a bedrock well
- Site included two six-inch diameter bedrock wells which were installed in 1990 and limited in use due to well diameter and pressure requirements
- Supervise the drilling of an 8-inch diameter bedrock well using the air hammer drilling method
- Large water bearing fractures zones were encountered at 368 and 372-feet bgs
- Performed a step-drawdown test which determined that the constant-rate pump test should be performed at a flowrate of 300-gpm
- During the 48-hour constant-rate pump test, drawdown was measured at only 13-percent of the total available drawdown and the well was capable of producing between 300 and 500 gpm for extended periods of time



INDIAN RIDGE COUNTRY CLUB

8-Inch Bedrock Well #2 Installation and Pumping Test
Andover, Massachusetts

- Contracted to conduct a hydrogeological study to investigate the potential for development of a large capacity well to avoid purchasing municipal water for irrigation purposes
- Use borehole geophysics techniques to determine the optimal drilling location
- Supervised the installation of an 8-inch diameter Bedrock Well. Well casing was set at 60-feet bgs and well was drilled to 700-feet bgs using air hammer drilling techniques
- A step-drawdown pumping test was performed to estimate the optimal pumping rate to use during a 4-day constant rate pump test
- The constant-rate pump test indicated that the bedrock water supply well could produce 240 gpm over an extended period of time



SOUTHEAST BEDROCK WELL

Department of Public Works
Leominster, Massachusetts

- Retained as a consulting hydrogeologist by the City to complete a water supply investigation
- Led the city to install a bedrock well in one of their sand and gravel well fields due to exploratory experience. Well was drilled using air rotary drilling techniques and advanced to a depth of 980 feet
- Designed and conducted a 10-day constant-rate pump test which indicated that the well could produce an average of 125 gpm and the existing gravel-pack wells in the vicinity would not be significantly affected



BEDROCK WELL #1
Portsmouth Country Club
Greenland, New Hampshire

- Contracted to decrease the quantity of water purchased from the city for irrigation
- Performed drilling oversight, pump testing and groundwater sampling
- Installed an open hole bedrock well after grouting 8-inch diameter steel casing to seal off the overburden marine clay
- Drilled to a total depth of 400-feet and a major water bearing fracture was encountered at about 360 feet bgs
- Obtained a Temporary Surface Water Discharge Permit from the NHDES prior to conducting the pump test
- Well was rated for over 100 gpm



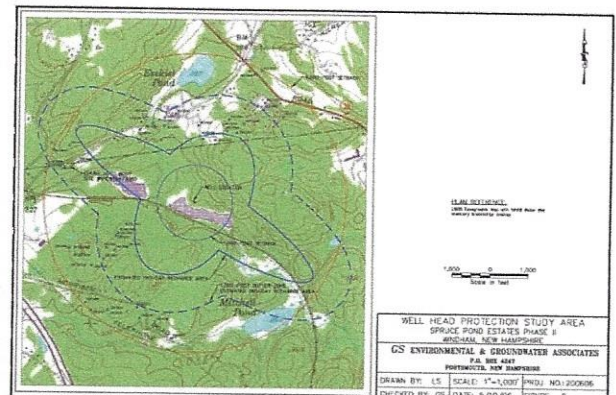
TOWN OF PORTSMOUTH
Private Client
Portsmouth, New Hampshire

- Determined the feasibility of using a former rock quarry to supplement an irrigation source derived strictly from a municipal system
- Project included chemical testing, pump testing, and permitting. Source could potentially save the golf course 30% of irrigation cost.



TOWN OF WINDHAM
Spruce Pond Phase 1 Windham, New Hampshire

- Provided hydrogeological consulting services related to the development of two bedrock wells capable of producing 86,400 gpd
- Well #1 is capable of pumping 20 gpm and Well #2 is capable of pumping 40 gpm
- Conducted pump test, data logger installation and analyses, analysis of pump test data, determination of the 180-day cone of depression, drainage area analyses, Wellhead Protection Area analyses (WHPA) and determined the Potential Impact Area (Study area)
- Submitted a Preliminary Large Groundwater Withdrawal Permit Application and Final Pump Test Report to NHDES
- Provided Mitigation Plans, Source Replacement Plans and other hydrogeological information to NHDES

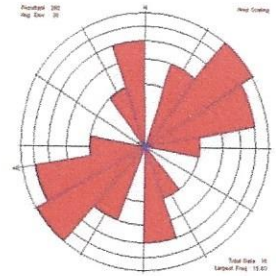


- Large Groundwater Withdrawal project was approved by the NHDES under the Administration Rules Env-Ws 379 and Env-WS388

TOWN OF WINDHAM

Spruce Pond Phase II Windham, New Hampshire

- Provided hydrogeological consulting services related to the development of two large production bedrock wells capable of producing over 200,000 gpd
- Well #2 is capable of pumping over 150 gpm and Well #3 is capable of pumping over 80 gpm
- Conducted preliminary pump test, analyses of pump test data, determination of an estimated 180-day cone of depression, drainage area analyses, Wellhead Protection Area analyses (WHPA) and determined the estimated Potential Impact Area (Study area)
- Submitted a Preliminary Large Groundwater Withdrawal Permit Application to NHDES and obtained approval

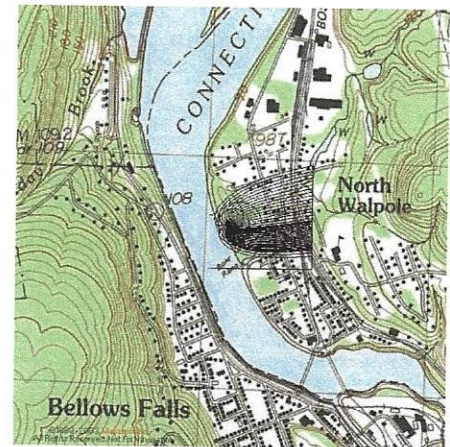


VILLAGE OF NORTH WALPOLE

Gravel Well #2

Village of North Walpole, New Hampshire

- Designed the hydrogeologic study to meet the requirements of NHDES Minor Large Groundwater Withdrawal Permit Application, prepared and obtained approval by NHDES under the Administration Rules Env-WS 379 and Env-WS388
- Well #2 is an 18-inch diameter gravel packed well installed to a depth of 42 feet
- Oversaw the installation of six monitoring wells, including a well from which antecedent conditions were measured during the withdrawal testing
- Conducted a 3-day withdrawal test on Backup Well #2
- Monitored the effects to the flow of the Connecticut River
- Analyzed the predicted cone of depression
- Well head protection area was determined using the Well Head Protection Area (WHPA) semi-analytical model



TOWN OF BRENTWOOD

Production Well #1

Northern Springs, Inc.

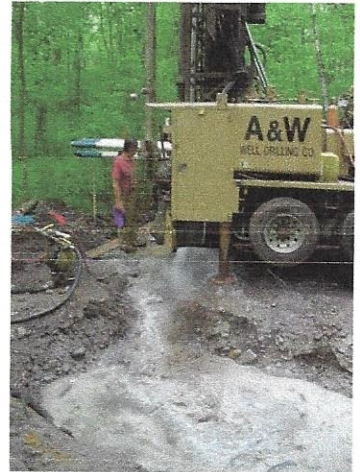
Brentwood, New Hampshire

- Retained by Northern Springs, Inc., to prepare a permit application for a new water supply well for a spring water source located on land which was formerly used as a sand and gravel borrow pit and contains springs on the property
- Installed five test wells, followed by one 6-inch diameter, naturally developed well (Production Well #1) installed in the most favorable location identified from the geophysics and test well advancement
- Designed and performed a 7- day pump test
- Large Groundwater Withdrawal was approved by the NHDES under the administration rules Env-Ws 379 and Env-WS388



TOWN OF KINGSTON
Granite Fields Golf Course
Kingston, New Hampshire

- Developed and obtained a permit for a groundwater supply for a golf course consisting of about 155 acres
- Large Groundwater Withdrawal was approved by the NHDES under the administration rules Env-Ws 379 and Env-WS388 and the project was approved at a public hearing in 2000
- Estimated the area of contribution of the well field at various pumping rates using the USGS MODFLOW model



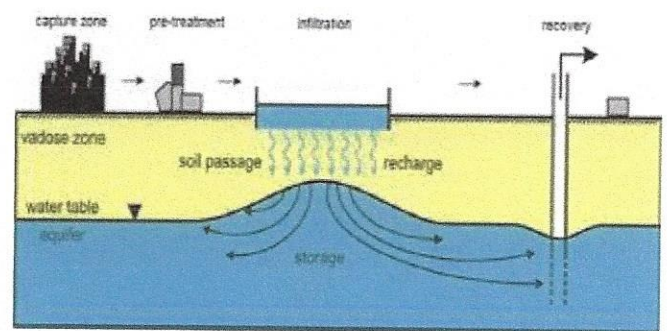
TOWN OF DOVER
French Cross Road Well
Dover, New Hampshire

- One of the deepest gravel packed well in the State of New Hampshire and consists of a 24 x 18-inch gravel packed well 172 feet deep installed in 1992
- Conducted a 48-hour pump test in 2004 to determine the specific capacity, well yield and water quality of the aquifer to re-permit the well as it had remained dormant for almost 15 years
- Water quality sampling was conducted to meet the requirements of NHDES Env-Ws 379 and Env-Ws 388 regulations
- Well is capable of pumping over 1,000 gpm and is currently utilized by the City of Dover



TOWN OF SEABROOK
Artificial Recharge Study
Bedrock Well Field Site-Seabrook, New Hampshire

- Conducted an investigation into the feasibility of developing artificial recharge basins for the Town of Seabrook's current bedrock well field. Two recharge areas were selected for the study.
- Previous studies indicated that excess flow from the Hampton Falls River could be diverted to bedrock recharge basins potentially increasing the recharge to the bedrock aquifer by 25% to 30% over time.
- A subsurface soil exploration program indicated that extensive layers of marine silts/clays and glacial till deposits covered the study areas.
- The conclusion of the investigation indicated that these deposits have low hydraulic conductivities and were not favorable for increasing recharge to the bedrock aquifer.
- Recommendations were made to develop additional groundwater resources in the bedrock aquifer in other areas of the town.



Steven Heyliger P.L.L.C.
30 Mountain View Rd
Whitefield, NH, 03598
(603)837-9896

Work Experience:

Heyliger Surveying, (L.L.S #1039) Established in November of 2018, Owner/Operator.

- Daily duties including, but not limited to, all aspects of running a Surveying & Mapping business working on projects ranging from large perimeter surveys to small construction stake out surveys and flood certifications. Current projects include a 230 acre subdivision in Dummer and The Mount Moosilauke Lodge, 2500' above sea level on the slopes of the mountain.

Ames Associates, December 2015 to May 2018. Project Surveyor

- Conduct records research at the State, County and Town levels for Boundary determinations and platting information.
- Perform GPS and Total Station field surveys for Boundary Retracements, Shore Land and Wetlands permitting.
- Draft all field work for permitting, design, and survey, including topographical surfaces used for construction, design and mapping.

Kellogg Surveying and Mapping, December 2007 to August 2015. Survey Technician

- Conduct records research at the State, County and Town levels for Boundary determinations and platting information.
- Perform GPS and Total Station field surveys .
- Perform all calculations and layout for residential, commercial and industrial projects such as the Cummerford Dam Switch yard and Sub-station reconstruction as well as the 25,000 acre Dummer Wind Farm sub-station, switchyard and road layout.
- Generated all topographical surfaces used for construction and mapping, as well as, volume determinations for cut and fill analysis.
- Complete State of NH 155e and A.O.T. permitting as well as client representation at town planning board meetings.
- Assist in project cost analysis and bidding.

Jones& Beach, November 2003 to April 2007. Party Chief

- Conduct records research at the State, County and Town levels for Boundary determinations and engineering support.
- Perform GPS and Total Station field surveys, as well as construction stakeout.
- Supervise, train and instruct junior employees and new crew members.

Education:

- Dover NH School System, Diploma
- Thompson School Of Applied Science, AS Forestry.
- University of New Hampshire, BS, Outdoor Education.

Personal:

- Married for twenty three years to my wife Celina
- I have two sons. Jeremiah, 19 and Samuel, 18.
- I enjoy gardening, skiing and cooking.

References:

Chris Albert, CSA Environmental. Owner, (603)706-2521

Sean Sweeney, Headwaters Hydrology. Owner, (603) 616-6850

David Albereni, Little Tree Woodworking. Owner, (603)444-6002